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10/544,206	03/10/2006	Antoine Moulin	Q89340	8480
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EXAMINER				
ZHU, WEIPING				
ART UNIT		PAPER NUMBER		
1793				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/544,206

**Applicant(s)**

MOULIN, ANTOINE

**Examiner**

WEIPING ZHU

**Art Unit**

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 13-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on January 9, 2008 has been entered.

### ***Status of Claims***

2. Claims 1-11 are currently under examination wherein claim 1 has been amended in applicant's amendment filed on December 10, 2007.

### ***Comments***

3. Applicant's affirmation of the election of the Invention of I, Claims 1-12, without traverse in the reply filed on December 10, 2007 has been acknowledged. The drawings filed by the applicant on March 10, 2006 have not been in the record.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakaoka et al. (US 4,336,080) in view of Chatfield et al. (US 4,159,218).

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With respect to claims 1-12, Nakaoka et al. ('080) disclose a method for producing a cold-rolled dual-phase steel sheet from a slab with a chemical composition comprising by weight: C: 0.02-0.06%; Mn: 0.05-0.30%; N: <0.005%; Al: 0.02-0.06%; P: 0.01-0.06%; Si: <0.20% (col. 5, line 49 – col. 7, line 10). The said method comprises:

hot-rolling the steel slab heated to 1250° C to prepare a hot-rolled steel strip (col. 10, lines 34-39);

coiling the hot-rolled strip at a temperature within the range of 650° C to 770° C (abstract);

cold-rolling the strip with a reduction ratio of 75% (col. 10, lines 34-44);

continuous-annealing the strip by heating the strip to a temperature within the range of 750° C to 880° C and holding it there for a pre-determined time (i.e. soaking) as claimed in the instant claim 6 (abstract);

cooling the strip to 750° C by a gas jet followed by a rapid cooling by a water jet with a quenching rate of about 2000° C/sec as claimed in the instant claims 10 and 12 (col. 10, lines 50-53);

over-aging the strip at a temperature within the range of 260° C to 360° C (abstract).

Nakaoka et al. ('080) do not teach that the slab contains chromium as in the instant claims 1 and 2.

Chatfield et al. ('218) disclose a substantially identical method for producing a ferritic martensitic dual-phase steel strip containing 0.1-0.7 wt% of Cr (abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add 0.1-0.7 wt% of chromium into the slab as disclosed by Chatfield et al. ('218) in the composition of Nakaoka et al. ('080) in order to increase hardenability at a cost factor significantly lower than that found in a steel having an increased manganese content as disclosed by Chatfield et al. ('218) (col. 2, lines 8-16).

Nakaoka et al. ('080) in view of Chatfield et al. ('218) do not specify the hot-rolling finishing temperatures as claimed in the instant claims 3 and 4. However the hot-rolling finishing temperature is a result-effective variable, because it would directly affect the coiling temperature which would in turn affect the Lankford value ( $r$ ) of the steel sheet as disclosed by Nakaoka et al. ('080) (col. 7, lines 17-23). Therefore, it would have been obvious to one of ordinary skill in the art to optimize the hot-rolling finishing temperature of Nakaoka et al. ('080) in view of Chatfield et al. ('218) in order to achieve the desired properties. See MPEP 2144.05 II.

Nakaoka et al. ('080) in view of Chatfield et al. ('218) do not disclose the cooling rates as claimed in the instant claims 9 and 11. However, it is well held that discovering an optimum value of a result-effective variable involves only routine skill in the art. In re Boesch, 617, F.2d 272, 205 USPQ 215 (CCPA 1980). In the instant case, the cooling rate after the continuous annealing is a result-effective variable, because it would directly affect the carbon content in ferrite and the microstructure of the steel as disclosed by Nakaoka et al. ('080) (col. 8, line 30 to col. 9, line 19). An ordinary skilled in the art would have optimized the cooling rate, in Nakaoka et al. ('080) in view of Chatfield et al. ('218) at the time the invention was made in order to achieve desired

microstructure and properties of the dual-phase steel of Nakaoka et al. ('080) in view of Chatfield et al. ('218). See MPEP 2144.05 II.

The final strip of Nakaoka et al. ('080) in view of Chatfield et al. ('218) has a structure of ferrite and a low-temperature transformation phase (abstract). The volume ratio of the low-temperature transformation phase is up to 10% of the structure as a whole (col. 9, lines 3-7). Nakaoka et al. ('080) in view of Chatfield et al. ('218) do not specify that the low-temperature transformation phase is martensite as claimed. However, it has been well held where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical process, a prima facie case of either anticipation or obviousness has been established. In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977), MPEP 2112.01 [R-3] I. In the instant case, the cold-rolled dual-phase steel sheet of Nakaoka et al. ('080) in view of Chatfield et al. ('218) is identical or substantially identical to that of the instant disclosure, therefore a prima facie case of obviousness exists. The same ferritic and martensitic structure would be expected in the steel sheet of Nakaoka et al. ('080) in view of Chatfield et al. ('218) as in the claimed steel strip.

The contents of C, Mn, Cr, Si, P, Al and N in the slab of Nakaoka et al. ('080) in view of Chatfield et al. ('218) overlap the claimed contents in the instant claims 1 and 2; the coiling temperature range of Nakaoka et al. ('080) in view of Chatfield et al. ('218) is within the claimed range in the instant claim 1; the cold-rolling reduction ratio of Nakaoka et al. ('080) in view of Chatfield et al. ('218) is within the claimed ranges in the instant claims 1 and 5; the soaking temperature range in the continuous annealing of

Nakaoka et al. ('080) in view of Chatfield et al. ('218) overlaps the claimed ranges in the instant claims 1, 7 and 8; the over-aging temperature of 260°C of Nakaoka et al. ('080) in view of Chatfield et al. ('218) is close to the claimed tempering temperature of 250°C in the instant claim 1; the percentage of the low temperature transformation phase in the whole structure of Nakaoka et al. ('080) in view of Chatfield et al. ('218) also overlaps the claimed martensite percentage in the instant claim 1. The overlapping ranges establish a prima facie case of obviousness. See MPEP 2144.05 I. It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the claimed ranges within the disclosed ranges of Nakaoka et al. ('080) in view of Chatfield et al. ('218) with expected success, because Nakaoka et al. ('080) in view of Chatfield et al. ('218) disclose the same utility over the entire disclosed ranges.

### ***Response to Arguments***

5. The applicant's arguments filed on December 10, 2007 have been fully considered but they are not persuasive.

First, the applicant argues that Nakaoka et al. ('080)'s over-aging temperature of 260°C is different from the claimed tempering temperature of less than 260°C. In response, see the new ground of the rejection of the claimed feature in the paragraph above.

Second, the applicant argues that Nakaoka et al. ('080)'s over-aging treatment is different from the claimed tempering operation. In response, the examiner notes that both operations are done to "toughen" the steel by precipitating carbon out of the distorted BCT structure (i.e. the martensite). Furthermore, it is well held that the claim

language that suggests or makes optional but does not require steps to be performed or does not limit a claim to a particular structure does not limit the scope of a claim or claim limitation. In the instant case, the tempering step in claim 1 is stated as optional, therefore, it does not limit the scope of claim 1. See MPEP 2106 II C.

Third, the applicant argues that Nakaoka et al. ('080) teach away from the use of a temperature less than 260°C. In response, the examiner notes the over-aging temperature of Nakaoka et al. ('080) is a result-effective variable because it would directly affect the balance of the ductility and the strength of the steel of Nakaoka et al. ('080) as disclosed by Nakaoka et al. ('080) (col. 9, lines 21-49). An ordinary skilled in the art would have optimized the over-aging temperature of Nakaoka et al. ('080) in view of Chatfield et al. ('218) at the time the invention was made in order to achieve desired balance of the ductility and the strength of the steel of Nakaoka et al. ('080) in view of Chatfield et al. ('218). See MPEP 2144.05 II. Therefore, Nakaoka et al. ('080) do not teach away from the use of a temperature less than 260°C as the applicant argues.

Fourth, the applicant argues that the examples of Nakaoka et al. ('080) do not contain martensite. In response, the examiner notes as stated in the paragraph above the volume ratio of the low-temperature transformation phase (i.e. the martensite) is up to 10% of the structure as a whole (col. 9, lines 3-7). Furthermore, the comparison of the tensile strengths listed in the Table 2 of Nakaoka et al. ('080) with those listed in the Table 1 of Chatfield et al. ('218) is not rational, because the samples of Nakaoka et al. ('080) and Chatfield et al. ('218) are different in terms of chemical compositions and processes.

Fifth, the applicant argues that one of ordinary skill in the art would not combine Nakaoka et al. ('080) with Chatfield et al. ('218). In response, the examiner notes that Chatfield et al. ('218) is combined with Nakaoka et al. ('080) only to meet the claim limitation of the Cr content. The grounds of the rejections of the claimed Mn content and other claim limitations still rely on the teachings of Nakaoka et al. ('080). As stated in the paragraph above, the combination of Nakaoka et al. ('080) and Chatfield et al. ('218) with a proper motivation renders the instant claims obvious to one of ordinary skill in the art.

### ***Conclusion***

6. This Office action is made non-final. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Weiping Zhu whose telephone number is 571-272-6725. The examiner can normally be reached on 8:30-16:30 Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Roy King/  
Supervisory Patent Examiner, Art  
Unit 1793

WZ

2/25/2008

**Application Number****Application/Control No.**

10/544,206

**Examiner**

WEIPING ZHU

**Applicant(s)/Patent under  
Reexamination**

MOULIN, ANTOINE

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